

What is claimed is:

1. A method for forming a composite extrusion suitable for use as a glass run channel in an automobile, the method comprising the steps of:

providing a thermoset elastomer rubber;

extruding said thermoset elastomer rubber to form a main body

5 member;

providing a crosslinkable thermoplastic;

extruding said crosslinkable thermoplastic to form an abrasion  
resistant layer;

10 at least partially crosslinking said crosslinkable thermoplastic of  
said abrasion resistant layer;

contacting said abrasion resistant layer with said main body  
member; and

15 subsequent to contacting said abrasion resistant layer with said  
main body member, at least partially curing said main body member by  
heating said main body member to the cure temperature of said thermoset  
elastomer rubber, thereby forming said composite extrusion.

2. The method according to claim 1, wherein said crosslinkable thermoplastic is a moisture crosslinkable polyolefin.

3. The method according to claim 2, wherein said moisture crosslinkable polyolefin is a silane grafted polyethylene.

4. The method according to claim 2, wherein the step of at least partially crosslinking said moisture crosslinkable polyolefin is performed by immersing said abrasion resistant layer in a steam bath.
5. The method according to claim 4, wherein the step of extruding said thermoset elastomer rubber is performed utilizing an extrusion temperature of about 110°C, the step of extruding said crosslinkable thermoplastic is performed utilizing an extrusion temperature of from about 200°C to about 220°C, the step of immersing said abrasion resistant layer in a steam bath is performed by utilizing said steam bath at a temperature of from about 100°C to about 110°C and the step of at least partially curing said main body member by heating said main body member is performed by heating said body member to a temperature of from about 195°C to about 300°C.
6. The method according to claim 5, wherein the step of at least partially curing said main body member by heating said main body member is performed by heating said main body member to a temperature of about 195°C, maintaining said main body member at about 195°C for about 15 to about 50 seconds, further heating said main body member to a temperature of about 220°C, maintaining said main body member at about 220°C for about 45 seconds to about 2.4 minutes, and then cooling said main body member to a temperature of about 195°C and maintaining said main body member at about 195°C for about 15 to about 50 seconds.

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7. The method according to claim 1, wherein said contacting step is performed after said step of at least partially crosslinking said crosslinkable thermoplastic of said abrasion resistant layer.
  8. The method according to claim 1, wherein said contacting step is performed before said step of at least partially crosslinking said crosslinkable thermoplastic of said abrasion resistant layer.
  9. The method according to claim 1, wherein the steps of extruding said thermoset elastomer rubber and extruding said crosslinkable thermoplastic are performed by simultaneously extruding said thermoset elastomer rubber and said crosslinkable thermoplastic through a common extrusion die.
  10. The method according to claim 1, wherein said abrasion resistant layer is a tape member.
  11. The method according to claim 10, further comprising a lamination step wherein said tape member is laminated to said main body member by use of a lamination wheel.
  12. The method according to claim 1, wherein the step of providing a thermoset elastomer rubber is performed by providing an ethylene-propylene-diene terpolymer (EPDM) rubber.

13. The method according to claim 1, wherein the thickness of said abrasion resistant layer is from about 0.005 to about 0.040 inches.

14. The method according to claim 13, wherein the thickness of said abrasion resistant layer is from about 0.010 to about 0.020 inches.

15. A method for forming a composite extrusion suitable for use as a glass run channel in an automobile, the method comprising the steps of:

providing a thermoset elastomer rubber;

5 extruding a main body member from said thermoset elastomer rubber;

providing a crosslinkable thermoplastic;

extruding an abrasion resistant layer from said crosslinkable thermoplastic at a temperature of from about 200°C to about 220°C;

10 contacting said abrasion resistant layer with said main body member;

at least partially crosslinking said crosslinkable thermoplastic of said abrasion resistant layer; and

15 at least partially curing said main body member by heating said main body member to the cure temperature of said thermoset elastomer rubber, thereby forming the composite extrusion.

16. The method according to claim 15, wherein said crosslinkable thermoplastic is a moisture crosslinkable polyolefin.

17. The method according to claim 16, wherein said moisture crosslinkable polyolefin is a silane grafted polyethylene.

18. The method according to claim 16, wherein the step of at least partially crosslinking said crosslinkable thermoplastic of said abrasion resistant layer is performed by immersing said abrasion resistant layer in a steam bath.

19. The method according to claim 18, wherein the step of extruding said main body member is performed at an extrusion temperature of about 110°C, the step of immersing said abrasion resistant layer in a steam bath is performed at a steam bath temperature of from about 100°C to about 110°C and the step of at least partially curing said main body member by heating said main body member is performed by heating the main body member to a temperature of from about 195°C to about 300°C.

20. The method according to claim 19, wherein the step of at least partially curing said main body member by heating said main body member is performed by heating said main body member to a temperature of about 195°C, maintaining said main body member at about 195°C for about 15 to about 50 seconds, further heating said main body member to a temperature of about 220°C, maintaining said main body member at about 220°C for about 45 seconds to about 2.4 minutes, and then cooling said

main body member to a temperature of about 195°C and maintaining said main body member at about 195°C for about 15 to about 50 seconds.

21. The method according to claim 15, wherein the contacting step is performed after the step of at least partially crosslinking said thermoplastic of said abrasion resistant layer.

22. The method according to claim 15, wherein the contacting step is performed before the step of at least partially crosslinking said thermoplastic of said abrasion resistant layer.

23. The method according to claim 15, wherein the steps of extruding said thermoset elastomer rubber and said crosslinkable thermoplastic are performed by simultaneously extruding said thermoset elastomer rubber and said crosslinkable thermoplastic through a common extrusion die.

24. The method according to claim 15, wherein said main body member is cured prior to contacting said abrasion resistant layer with said main body member.

25. The method according to claim 15, wherein said main body member is cured subsequent to contacting said abrasion resistant layer with said main body member.

26. The method according to claim 15, wherein said abrasion resistant layer is a tape member.

27. The method according to claim 26, further comprising a lamination step wherein said tape member is laminated to said main body member by use of a lamination wheel.

28. The method according to claim 15, wherein said thermoset elastomer rubber is an ethylene-propylene-diene terpolymer (EPDM) rubber.

29. The method according to claim 15, wherein the thickness of said abrasion resistant layer is from about 0.005 to about 0.040 inches.

30. The method according to claim 29, wherein the thickness of the abrasion resistant layer is from about 0.010 to about 0.020 inches.

31. A method for forming a composite extrusion suitable for use as a glass run channel in an automobile, the method comprising the steps of:

providing a thermoset elastomer rubber;

extruding a main body member from the thermoset elastomer rubber;

providing an abrasion resistant layer comprising a high ethylene content ethylene-propylene-diene terpolymer (EPDM) rubber that comprises from about 70 to about 95 weight percent ethylene and from

about 3 to about 11 weight percent diene and having a crystallinity of from about 8% to about 36% percent;

contacting the abrasion resistant layer with the main body member; and

at least partially curing the thermoset elastomer rubber by heating the main body member to the cure temperature of the thermoset elastomer rubber, thereby forming the composite extrusion.

32. The method according to claim 31, wherein said high ethylene content EPDM comprises ethylidene norbornene as its diene component.

33. The method according to claim 31, wherein the contacting step is performed after said high ethylene content EPDM is crosslinked.

34. The method according to claim 31, wherein the contacting step is performed before said high ethylene content EPDM is crosslinked.

35. The method according to claim 31, wherein the contacting step is performed before said thermoset elastomer rubber of said main body member is cured.

36. The method according to claim 31, wherein said abrasion resistant layer is a tape member.



37. The method according to claim 36, further comprising a lamination step wherein said tape member is laminated to said main body member by use of a lamination wheel.
38. The method according to claim 31, wherein said thermoset elastomer rubber is an ethylene-propylene-diene terpolymer (EPDM).
39. The method according to claim 31, wherein the thickness of said abrasion resistant layer is from about 0.005 to about 0.040 inches.
40. The method according to claim 39, wherein the thickness of said abrasion resistant layer is from about 0.010 to about 0.020 inches.
41. A wear resistant composite extrusion suitable for use as a glass run channel in an automobile comprising an abrasion resistant layer comprised of high ethylene content EPDM secured to and disposed immediately adjacent a main body member comprising an at least partially cured thermoset elastomer rubber, said high ethylene content EPDM including from about 70 to about 95 weight percent ethylene and from about 3 to about 11 weight percent diene and having a crystallinity of from about 8% to about 36%.
42. A wear resistant composite extrusion adapted for use as a glass run channel in an automobile, said wear resistant composite extrusion comprising:

a main body member comprising a thermoset elastomer rubber and having a bottom wall disposed between and joined to a first side wall and a second side wall, said second side wall oppositely located from said first side wall, each of said first and second side walls transversely extending from said bottom wall and including an inwardly projecting seal lip and a plurality of outwardly projecting retention spurs; and

an abrasion resistant layer secured to said bottom wall of said main body member, said abrasion resistant layer comprising a crosslinkable thermoplastic and having a thickness of from about 0.005 to about 0.040 inches.

43. The composite extrusion according to claim 42, wherein said thermoplastic is a moisture crosslinkable polyolefin.
44. The composite extrusion according to claim 43, wherein said moisture crosslinkable polyolefin is a silane grafted polyethylene.
45. The composite extrusion according to claim 43, wherein said moisture crosslinkable polyolefin is at least partially crosslinked.
46. The composite extrusion according to claim 42, wherein said abrasion resistant layer is in the form of a tape member having a thin laminar design with a generally uniform thickness of from about 0.005 to about 0.040 inches.

47. A wear resistant composite extrusion suitable for use as a glass run channel in an automobile comprising an extruded and at least partially cured high ethylene content EPDM abrasion resistant layer and an extruded and at least partially cured thermoset elastomer rubber main body member, said main body member comprising a bottom wall and two transversely extending side walls joined to opposite sides of said bottom wall, each side wall equipped with an inwardly projecting seal lip and a plurality of outwardly projecting retention spurs, said abrasion resistant layer bonded to and disposed adjacent said bottom wall of said main body member, said high ethylene content EPDM including from about 70 to about 95 weight percent ethylene and from about 3 to about 11 weight percent diene and having a crystallinity of from about 8% to about 36%, and the thickness of said abrasion resistant layer is from about 0.005 to about 0.040 inches.

48. A glass run channel for receiving and retaining a window, said glass run channel comprising:

(A) a thermoset elastomer rubber main body member having

(i) a bottom wall defining a first longitudinal edge, a second opposite longitudinal edge, a top surface extending between said first edge and said second edge, and a bottom surface opposite from said top surface, said bottom surface also extending between said first edge and said second edge,

(ii) a first side wall having a first end and a second opposite end, said first end contiguous with said first edge of said bottom wall and extending generally transversely with respect to said bottom wall,

(iii) a second side wall having a first end and a second opposite end, said first end contiguous with said second edge of said bottom wall and extending generally transversely with respect to said bottom wall,

(iv) a first sealing lip contiguous with said second end of said first side wall and extending generally transversely with respect to said first side wall,

(v) a second sealing lip contiguous with said second end of said second side wall and extending generally transversely with respect to said second side wall, wherein said bottom wall, said first and second side walls, and said first and second sealing lips define an interior chamber accessible by moving at least one of said first and second sealing lips; and

(B) a layer of an at least partially crosslinked abrasion resistant material disposed on said top surface of said bottom wall of said main body member and exposed to said interior chamber, said abrasion resistant material selected from the group consisting of a moisture crosslinkable polyolefin and a high ethylene content EPDM, and said layer having a thickness of from about 0.005 to about 0.040 inches.